

WHAT IS CLAIMED IS:

1. An integrated circuit device comprising a multilevel metallization interconnect system formed over a semiconductor substrate wherein the metallization system includes a bond pad level and one or more underlying levels of interconnect, the bond pad level comprising:
  - a plurality of contact pads each configured for connection external to the device;
  - and
  - an interconnect configured to transfer power from one or more of the plurality of contact pads to one or more of the underlying levels of interconnect.
2. The integrated circuit device of claim 1 wherein the material of the one or more levels of interconnect comprises copper.
3. The integrated circuit device of claim 1 wherein the material of the bond pad level comprises aluminum.
4. The integrated circuit device of claim 1 wherein the plurality of contact pads are configured for connection external to the device by a bond wire attached to one or more of the plurality of contact pads.
5. The integrated circuit device of claim 1 wherein the plurality of contact pads are configured for connection external to the device by a solder bump attached to one or more of the plurality of contact pads.
6. The integrated circuit device of claim 1 wherein the material of the one or more levels of interconnect comprises copper and the material of the bond pad level comprises aluminum, further comprising a barrier material in regions of physical contact between the copper and the aluminum.
7. The integrated circuit device of claim 1 further comprising one or more vias underlying and in electrical communication with the interconnect to transfer power from one or more of the pads to one or more of the underlying levels of interconnect.
8. The integrated circuit device of claim 1 wherein the one or more levels of interconnect further comprise substantially horizontal conductive runners and substantially vertical conductive vias interconnecting overlying and underlying conductive runners.
9. The integrated circuit device of claim 8 wherein the material of the substantially horizontal conductive runners and the substantially vertical conductive vias comprises copper.

10. The integrated circuit device of claim 1 further comprising a passivation layer disposed between the bond pad level and the one or more levels of interconnect underlying the bond pad level.

11. The integrated circuit device of claim 1 further comprising a passivation layer overlying the bond pad level.

12. An integrated circuit device comprising a multilevel metallization interconnect system formed over a semiconductor substrate wherein the metallization system includes a bond pad level and one or more underlying levels of interconnect, the bond pad level comprising:

a plurality of contact pads each configured for connection external to the device;  
and

an interconnect structure configured to connect one or more of the underlying levels of interconnect to another of the one or more underlying levels of interconnect.

13. The integrated circuit device of claim 12 wherein the material of the one or more levels of interconnect comprises copper.

14. The integrated circuit device of claim 12 wherein the material of the bond pad level comprises aluminum.

15. The integrated circuit device of claim 12 wherein the one or more levels of interconnect further comprise substantially horizontal conductive runners and substantially vertical conductive vias interconnecting overlying and underlying conductive runners.

16. The integrated circuit device of claim 15 wherein the material of the substantially horizontal conductive runners and the substantially vertical conductive vias comprises copper.

17. A process for forming an interconnect metallization system overlying a semiconductor substrate of an integrated circuit device, the process comprising:

forming one or more interconnect levels overlying the semiconductor substrate;

forming a bond pad level overlying the one or more interconnect levels, wherein the bond pad level comprises a plurality of contact pads each configured for connection external to the device, and an interconnect configured to transfer power from one or more of the plurality of contact pads to one or more of the underlying interconnect levels.

18. The process of claim 17 wherein the step of forming the bond pad level further comprises:

forming a dielectric layer overlying the one or more interconnect levels;

forming openings in the dielectric layer;

forming a conductive blanket layer overlying the dielectric layer;

forming the plurality of contact pads and the interconnect from the blanket layer, wherein the contact pads are formed in the openings and the interconnect is formed overlying the dielectric layer.

19. The process of claim 18 further comprising forming a barrier layer in the openings prior to forming the blanket layer.

20. The process of claim 17 further comprising forming a passivation layer overlying the bond pad level.

21. The process of claim 17 wherein the material of the one or more interconnect levels comprises copper.

22. The process of claim 17 wherein the material of the bond pad level comprises aluminum.

23. The process of claim 17 further comprising forming a plurality of conductive vias underlying the bond pad level for connecting with the one or more interconnect levels for transferring power from one or more of the plurality of contact pads to one or more of the underlying interconnect levels.

24. A process for forming an interconnect metallization system overlying a semiconductor substrate of an integrated circuit device, the process comprising:

forming one or more interconnect levels overlying the semiconductor substrate;

forming a bond pad level overlying the one or more interconnect levels, wherein the bond pad level comprises a plurality of contact pads each configured for connection external to the device, and an interconnect structure configured to connect one of the one or more underlying interconnect levels to another one of the one or more underlying interconnect levels.

25. The process of claim 24 wherein the step of forming the bond pad level further comprises:

forming a dielectric layer overlying the one or more interconnect layers;

forming openings in the dielectric layer;

forming a conductive blanket layer overlying the dielectric layer;

forming the plurality of contact pads and the interconnect structure from the blanket layer, wherein the contact pads are formed in an opening and the interconnect structure is formed overlying the dielectric layer.